

IN THE CLAIMS

Please amend the claims as follows:

1. (original) A zoom optical system comprising a lens system which is arranged to provide a variable zoom setting for a beam of radiation, wherein the lens system comprises a switchable optical element having a first mode and a second mode,

characterised in that the element includes a first fluid, a second fluid and a wavefront modifier having a part through which said radiation beam is arranged to pass, wherein

in the first mode the switchable optical element has a first fluid configuration in which said part is substantially covered by the first fluid, and

in the second mode the switchable optical element has a second, different, fluid configuration in which said part is substantially covered by the second fluid

2. (original) A zoom optical system according to claim 1, wherein the first fluid is a liquid and the second fluid is gaseous.

3. (currently amended) A zoom optical system according to any preceding claim, wherein the switchable optical element

comprises a common first fluid electrode, a second, different, fluid electrode and a third, different, fluid electrode, wherein  
in the first fluid configuration the element is arranged to provide switchable electrowetting forces by applying a first voltage across said first and second fluid electrodes, and

in the second fluid configuration the element is arranged to provide different switchable electrowetting forces by applying a second, different, voltage across said first and third fluid electrodes.

4. (currently amended) A zoom optical system according to any preceding claimclaim 1, wherein the switchable optical element comprises a further wavefront modifier having a different part through which said radiation beam is arranged to pass, wherein the wavefront modifier is adapted to perform a first wavefront modification and the further wavefront modifier is adapted to perform a second, different, wavefront modification which is arranged to complement the first wavefront modification.

5. (currently amended) A zoom optical system according to any preceding claimclaim 1, wherein the wavefront modifier has a face, wherein said face is substantially spherical or aspherical, and said part is on said face.

6. (currently amended) A zoom optical system according to  
~~any preceding claim~~claim 1, wherein said lens system comprises a  
further switchable optical element, said further switchable optical  
element being arranged to operate in cooperation with said  
switchable optical element to provide at least part of said  
variable zoom setting of the lens system.

7. (currently amended) A zoom optical system according to  
~~any preceding claim~~claim 1, wherein said first lens is a fluid  
meniscus lens which comprises different fluids separated by a fluid  
meniscus having a curvature,

wherein the optical system further comprises a control system  
and the variable focus comprises variations in the fluid meniscus  
curvature, wherein the control system is arranged to control the  
variable focus using meniscus electrowetting forces.

8. (original) A zoom optical system according to claim 7,  
wherein the fluid meniscus lens further comprises a first electrode  
and a second, different, electrode and the control system is  
arranged to apply a voltage across said first and second meniscus  
electrodes to provide said meniscus electrowetting forces.

9. (currently amended) A zoom optical system according to  
~~any of claims 1 to 5~~claim 1 wherein the lens system comprises a  
solid lens capable of being arranged at varying spatial positions  
relative to the switchable optical element.

10. (currently amended) A zoom optical system according to  
~~any of claims 1 to 5~~claim 1, wherein said lens system comprises a  
liquid crystal lens having a varying optical power.

11. (currently amended) Image capturing apparatus comprising  
a zoom optical system according to ~~any preceding claim~~claim 1,  
wherein with the optical system being in said first mode, the  
apparatus is adapted to capture an image with a first zoom setting,  
and with the optical system being in said second mode, said  
apparatus is adapted to capture an image with a second, different,  
zoom setting.

12. (original) Image capturing apparatus according to claim  
11, wherein said image capturing apparatus further comprises a  
digital zoom system arranged to introduce a digital zoom factor to  
an image captured in the first mode and/or an image captured in the  
second mode.